

Solve the system

$$\begin{cases} w + x + y + z = 3 \\ -w + x - 2y + z = -2 \\ 2w + 2x - y + z = 3 \\ 3w + x + y - z = 5 \end{cases}$$

$$\begin{aligned} w &= 1 \\ x &= 1 \\ y &= 1 \\ z &= 0 \end{aligned}$$

Var	Elim
2	1
3	3
4	6
5	10
6	15
$n$	$\frac{n(n-1)}{2}$
10	45
77	2926

$$\begin{bmatrix} 1 & 1 \\ 1 & 2 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 8 \\ 10 \end{bmatrix}$$
$$A \cdot X = B$$

$$X = A^{-1} \cdot B$$

$$A^{-1} = \frac{1}{1} \begin{bmatrix} 2 & -1 \\ -1 & 1 \end{bmatrix} = \begin{bmatrix} 2 & -1 \\ -1 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 2 & -1 \\ -1 & 1 \end{bmatrix} \cdot \begin{bmatrix} 8 \\ 10 \end{bmatrix} = \begin{bmatrix} 6 \\ 2 \end{bmatrix}$$

Solve w/ matrices

$$2x + 3y = 12$$

$$x + 2y = 7$$